

QUEST

ADVENTURES IN THE WORLD OF SCIENCE

HOMES

28

GIANT POSTER:

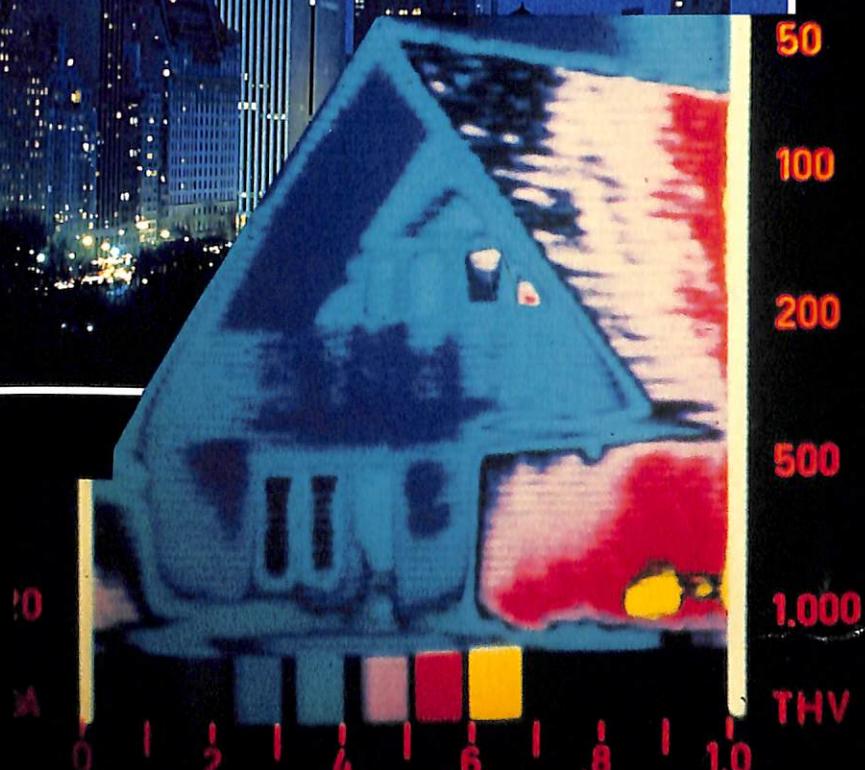
MODEL

**SOVIET SPACE
STATION**

**SCIENTIFIC
PROJECTS**

FACT FILES ON:

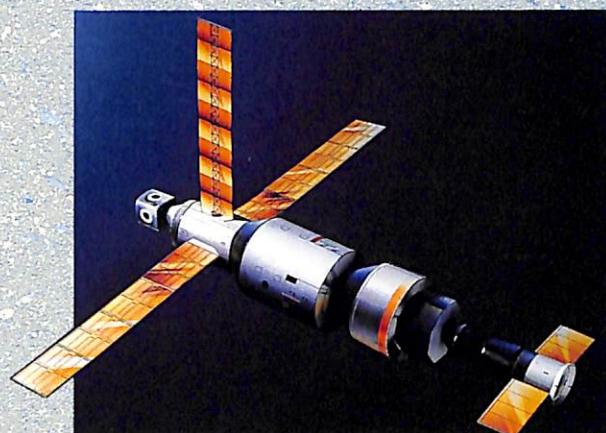
- *Travelling in Voyager*
- *Grime-busting enzymes*
- *The plastic house*
- *The long distance sailor*
- *Video phones*
- *Animal strongholds*



INSIDE THIS PACK

FACT FILES

- Floating villages
- Enzymes ► Heat shields
- Geodesic domes
- Animal bolt holes
- Aircraft carriers ► SAS survival
- Lightning strikes ► Melting ice-caps
- Bed bugs ► Life on a pin



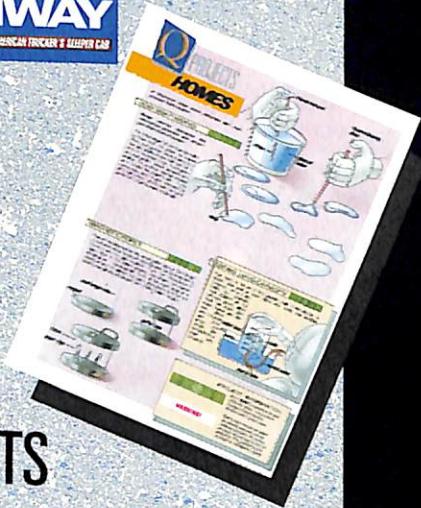
MODEL Soviet Space Station
Mir 1



HOME ON THE HIGHWAY

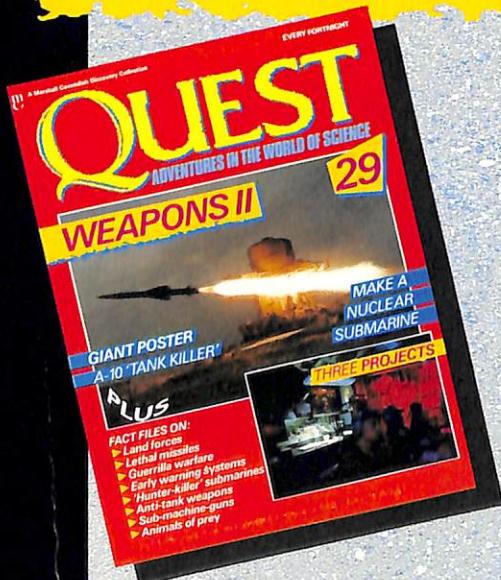
POSTER

Home on the road



PROJECTS

COMING IN QUEST 29 WEAPONS II



MODEL
Make a
submarine

FACT FILES INCLUDE:

- Animals of prey
- Battle tanks
- Guns and grenades
- Missiles
- Submarine warfare
- Guerrilla tactics



POSTER

Thunderbolt II –
the Fairchild A-10

ISSN 1350-3766

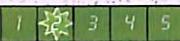




PROJECTS HOMES

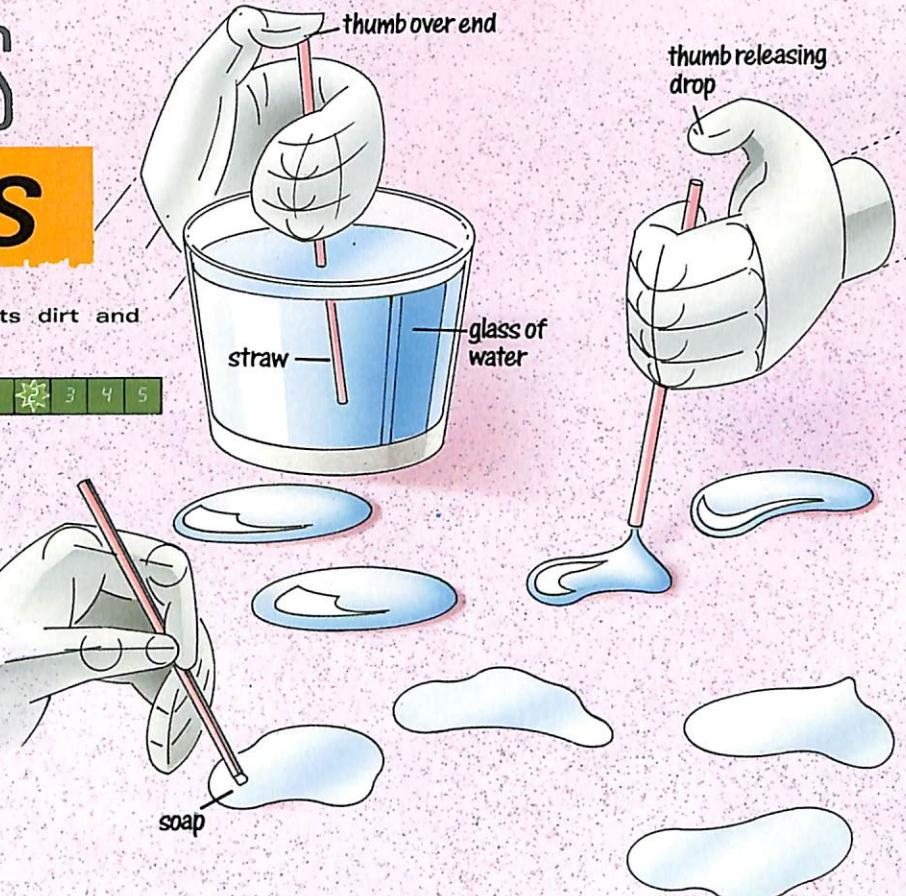
- Discover how soap attracts dirt and grease from water.

HOW SOAP WORKS



Soap works because its attractive powers are stronger than that of water.

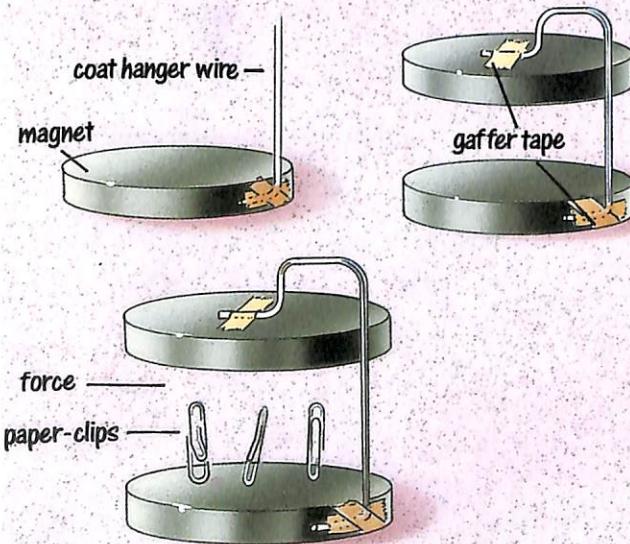
Put a few drops of water on to a flat surface with the straw as shown. Then, push a small piece of soap on to the end of the straw and touch it to one of the water drops. It will spread out and go flat. This is because soap makes the surface tension weaker and breaks the water's skin. In the same way, soap is also attracted to dirt and grease – it sticks to them and pulls them off pots, pans and hands.



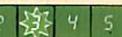
MAGNETIC FORCE



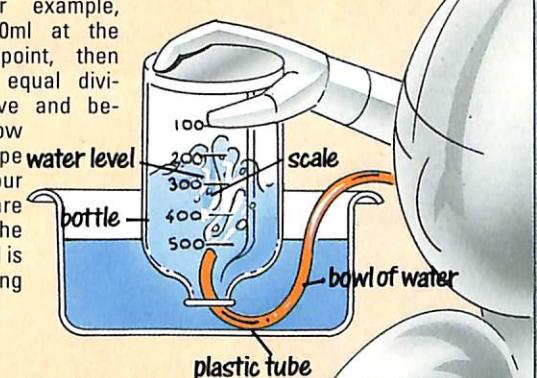
You will need two magnets, some gaffer tape, a 10cm length of stiff wire and a few paper clips. Secure the two magnets to the wire with the tape as shown. If you then place a row of paper clips on the bottom magnet, they should then remain standing up – the magnetic force of the upper magnet is strong enough to attract the paper clips towards it but not strong enough actually to pull them off the bottom magnet.



TESTING LUNG CAPACITY



You need a 1.5 or 2 litre plastic soft drinks bottle, a plastic pipe and a bowl. Mark the bottle into millilitre divisions – on a 2 litre bottle, for example, mark 1,000ml at the half-way point, then mark ten equal divisions above and below. Blow into the pipe **water level** until your lungs are empty. The water level is your lung capacity.



PROJECT INFORMATION



Each **QUEST** project has its own difficulty rating: 1 very simple, 2 simple, 3 intermediate, 4 advanced, 5 complicated.

WARNING!

Every care has been taken to ensure projects are as safe as possible. However, parents should supervise all projects. The publisher can accept no liability for injury.



MODEL

ASSEMBLY INSTRUCTIONS

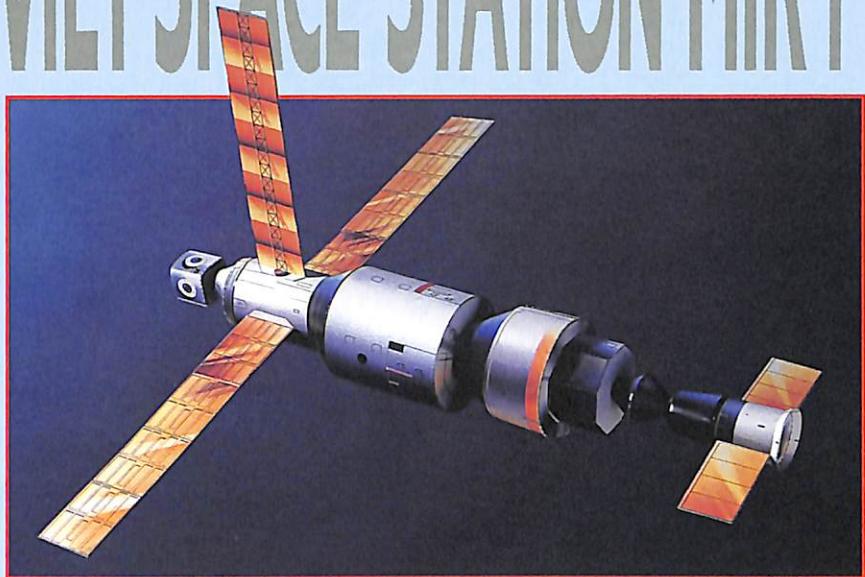
You will need

Scissors • Ruler • Craft knife • Glue

Before cutting out the pieces, score along all broken lines with a blunt edge and ruler to make folding and gluing easier. Study the ASSEMBLY DIAGRAM to see how the pieces fit together, and use dotted lines as a guide for positioning.

NB Younger children will need supervision when using a craft knife.

SOVIET SPACE STATION MIR 1



To make up

Body of Space station

1 Cut out body part **A**. Spread glue on to large tab and form into tube shape. Fold smaller tabs inwards.

2 Cut out **B**. Fold tabs inwards. Glue tabs of **B** to open end of **A** without tabs.

NB When gluing parts of Space station body together, make sure all lines where tube shapes have been joined together are aligned beneath Space station.

3 Cut out disc **C**. Glue **C** to tabs of open end of **A**.

4 Cut out **D** and glue into tube shape. Cut out **E** and glue into cone shape. Glue tabs on wider end of **E** to end of **D** without tabs.

5 Cut out disc **F**. Fold tabs on open side of **D** inwards. Glue **F** to tabs on open side of **D**.

6 Cut out **G**. Fold broken lines, then glue **G** into octagonal shape. Fold all tabs inwards. Glue tabs (on edge closest to rectangle drawn on **G**) to **F**, following

dotted octagon shape.

7 Cut out octagonal shape **H**. Glue **H** to tabs on open edge of **G**.

8 Stick tabs on open end of **E** to dotted circle on **C** (see ASSEMBLY DIAGRAM).

9 Cut out **I** and glue into tube shape. Cut out **J** and glue into cone shape. Stick tabs on wider edge of **J** to front end of **I** – the end marked by a thick black line along its edge. Fold tabs on open end inwards. Cut out disc **K** and glue to tabs on open end of **J**.

10 Cut out nose of Space station **L** and glue into cone shape. Fold tabs on wider end of **L** inwards and glue to **K**.

11 Glue tabs on **B** to **I**, to complete body of Space station.

Front docking pod

1 Cut out **M**, fold tabs inwards and glue into cube shape.

2 Cut out square **N** and glue to tabs on one end of **M**. Cut out square **O** and glue to tabs on other end of **M**.

3 Stick **N** to end of nose **L**, following dotted lines.

Craft docked at Space station

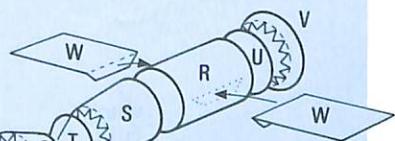
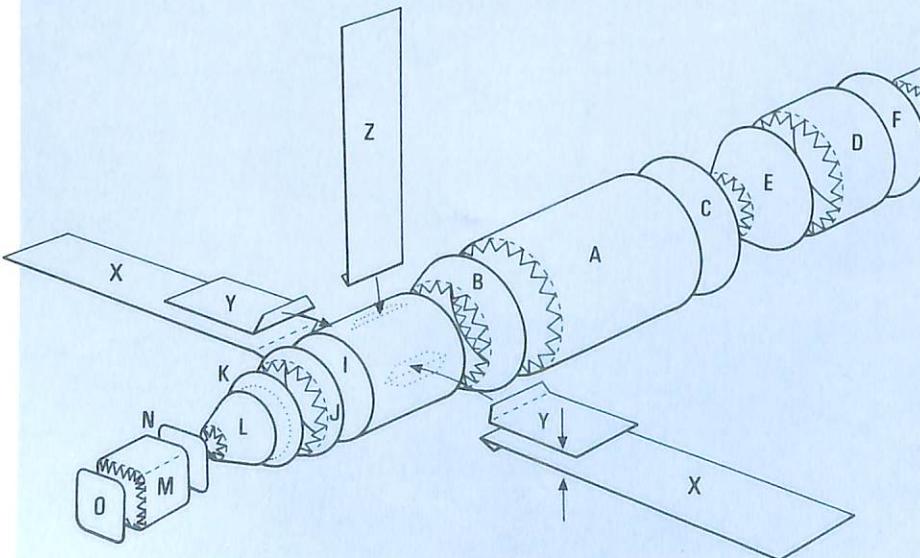
1 Cut out body part **P**. Glue into cone shape. Repeat with body part **Q**. Join **P** to tabs on wider end of **Q**.

2 Cut out body part **R** and glue into tube shape. Cut out **S** and make into tube. Glue tabs on wider edge of **S** to edge of **R** without tabs.

3 Cut out **T**, cut and glue slit to create slight curve and glue **T** to tabs on open end of **S**. Glue tabs on end of **Q** to **I**.

4 To finish rear of ferry craft, cut out disc **U** and skirt **V**. Fold tabs of **V** inwards. Glue **V** into circle and glue underside of tabs on to disc **U**. Attach tabs of **R** to **U** and **V**.

5 Cut out two solar panels (used to generate electricity), both marked **W**. Fold tabs and glue them to dotted lines on side of craft. Dock ferry craft on to Space station by gluing tabs on open end of **P** to dotted circle marked on **H**.



Solar panels of Space station

1 Cut out both panels marked **Y** and both marked **X**. Fold tabs of **Y** panels upwards and tabs of **X** panels downwards.

2 Glue underside of one panel **Y** to topside of one panel **X**, so that tabs touch – but do not glue tabs together. Glue tabs to dotted lines marking position on body part **I**.

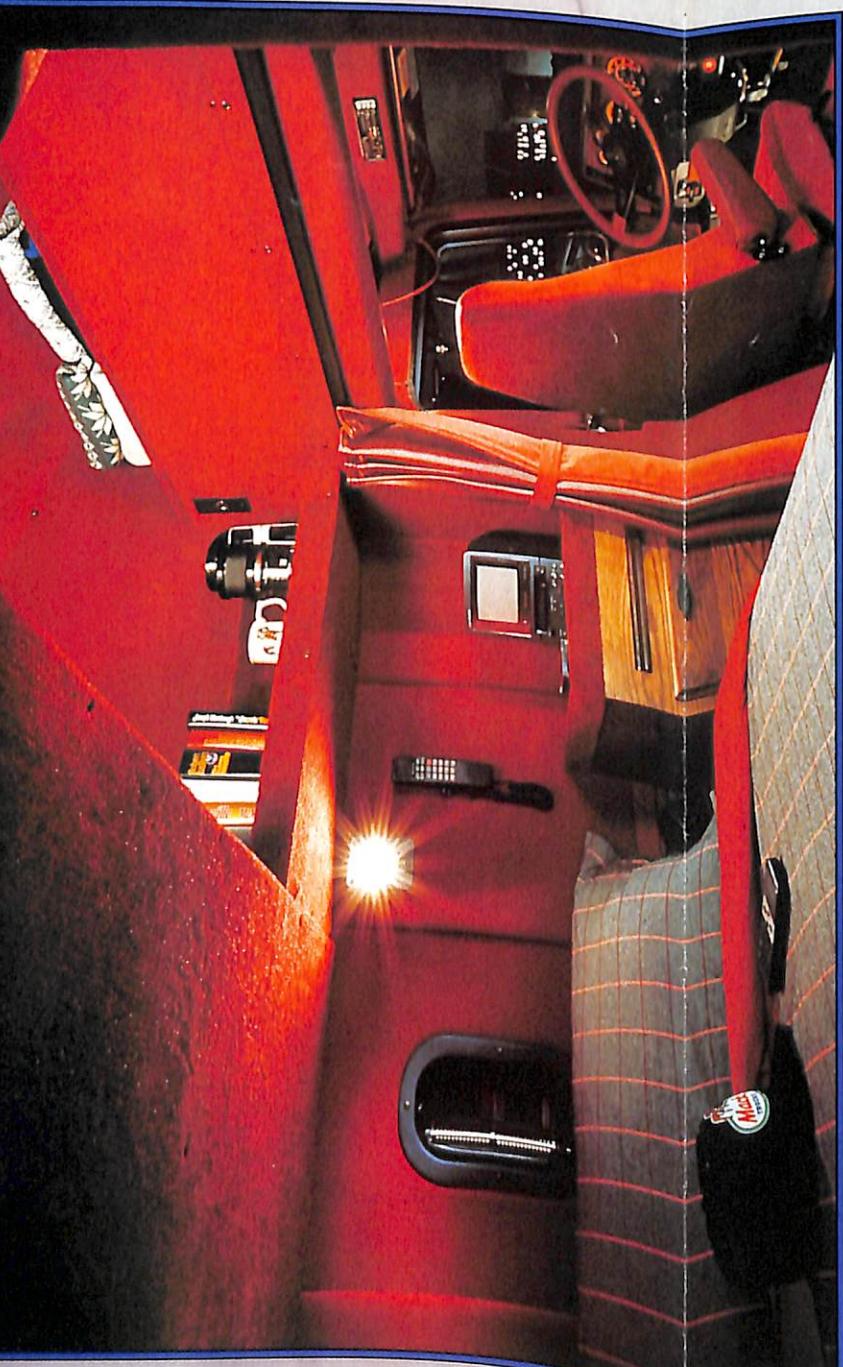
3 Repeat with other panels **X** and **Y**.

4 Cut out top solar panel **Z**. Glue underside of tab to dots marking position on **I**.

QUEST

HOME ON THE

Our thanks to Mack Trucks, Inc., Allentown, Pennsylvania, for assistance with this poster.



The sleeper box is equipped with twin bunks. Radio, TV, telephone, coffeemaker and even a microwave oven can be run from the truck's batteries. A central heating system using diesel oil from the vehicle's tanks warms the compartment and keeps the truck's engine from freezing on nights when the temperature is below zero.

exhaust pipe

Mack Trucks, Inc., Allentown, Pennsylvania



tool locker

Mack Trucks, Inc., Allentown, Pennsylvania

THE MACK CH600 TRUCK

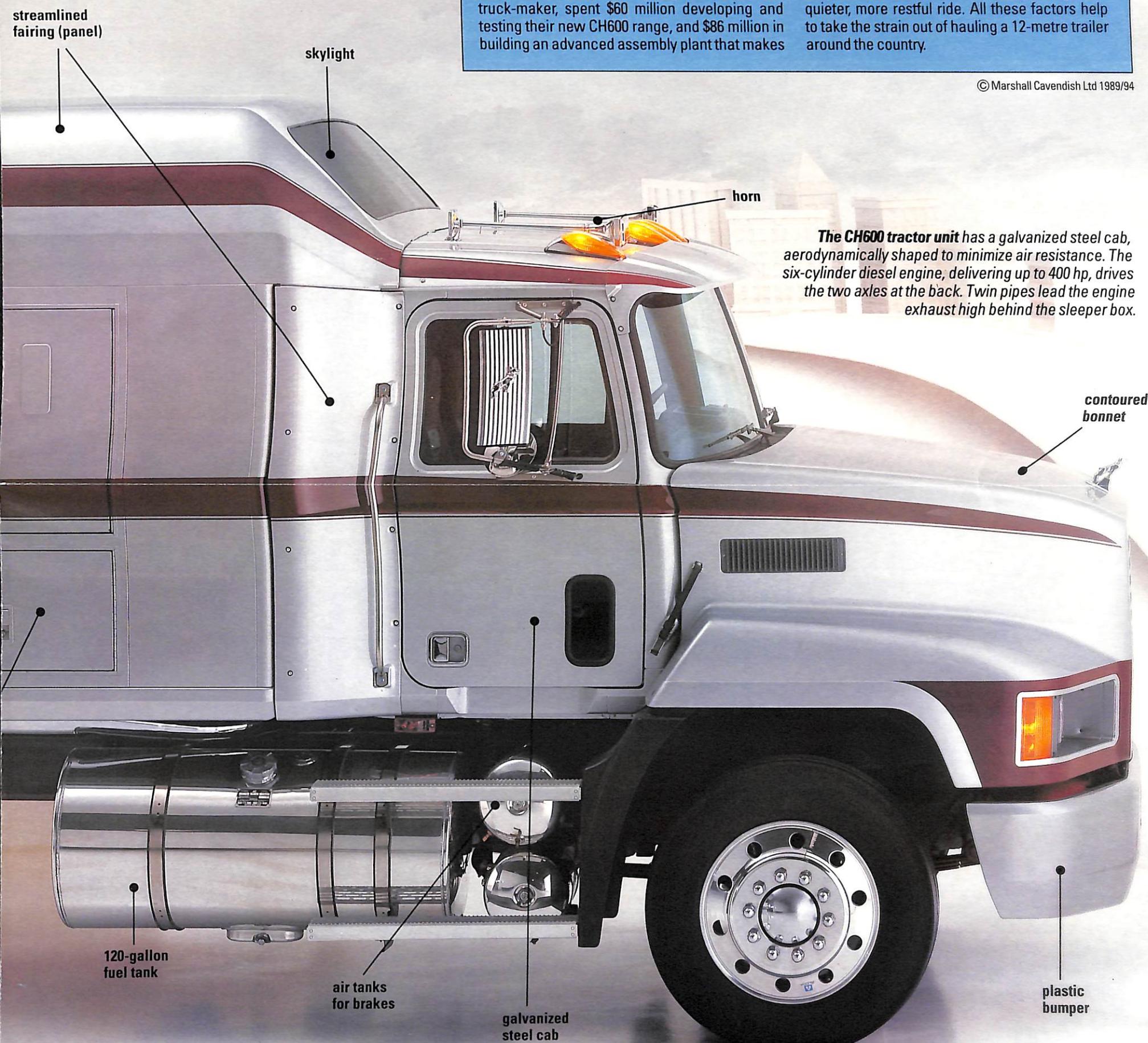
American truckers often drive their giant 18-wheeler rigs on coast-to-coast journeys that last weeks. The time they can spend working is strictly controlled by the law. Between shifts they might be on the move while their partner drives, or else parked far from hotel accommodation – but they must get plenty of rest and sound sleep. So they take their bedrooms with them, in the sleeper compartments behind the driving cab.

The Mack company, a long-established US truck-maker, spent \$60 million developing and testing their new CH600 range, and \$86 million in building an advanced assembly plant that makes

extensive use of robots. The CH600 sets high standards of comfort. In the sleeper 'box' there are twin bunks for the drivers (who are often a husband and wife team). Since it is 2.4 metres high, there is plenty of headroom to spare.

Comfort is not neglected when the trucker is actually driving. The driving seat has armrests and is fully adjustable. The telescopic steering wheel can be tilted into any of five positions. A streamlined body – lights and door hinges are set flush – improves fuel efficiency and gives a quieter, more restful ride. All these factors help to take the strain out of hauling a 12-metre trailer around the country.

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THE HIGHWAY

AN AMERICAN TRUCKER'S SLEEPER CAB

SOVIET SPACE STATION MIR 1

James Nevill 3D / Chris Lyon

